IN THE CLAIMS

Please enter the following claims:

1 (currently amended): A method of fabricating a micro-electromechanical system (MEMS) variable capacitor comprising the steps of:

a) depositing a first dielectric layer on a substrate, said first dielectric layer having at least one cavity etched therein;

b) forming an actuation electrode by filling with metal ~~and then~~ followed by planarizing said at least one cavity;

c) depositing a second dielectric layer on said first dielectric layer, and etching at least one cavity therein;

d) filling and planarizing said at least one cavity in said second dielectric layer with sacrificial material;

e) depositing a third dielectric layer on said second dielectric layer and etching at least one cavity therein;

f) forming a ground plane electrode by filling with metal and then planarizing said cavity in said third dielectric layer;

g) forming a plurality of metal lines on top of said third dielectric layer interconnected by way of conductive vias;

h) embedding elastomeric material between said conductive vias; and

i) selectively removing said second and third dielectric material surrounding said metal lines and said ground electrode, and etching away said sacrificial material.

2 (currently amended): The method as recited in claim 1, wherein steps g) and h) further comprise the steps of:

forming said conductive vias above said ground electrode in said third dielectric layer;

etching away dielectric material surrounding said conductive vias;

depositing said elastomeric material ~~above~~ in gaps separating said ~~etched~~ conductive vias; and

planarizing said elastomeric material.

3 (original): The method as recited in claim 1, wherein steps g) and h) further comprise the steps of:

etching a cavity in a fourth dielectric layer deposited on said third dielectric layer;

depositing said elastomeric material in said etched cavitiy; and

forming conductive vias within said elastomeric material.

4 (withdrawn): The method as recited in claim 1, wherein steps g) and h) further comprise the steps of:

depositing elastomeric material on said third dielectric;

depositing a fourth dielectric layer on said elastomeric material;

etching conductive vias in said fourth dielectric and said elastomeric material;

etching at least one cavity in said fourth dielectric layer exposing said conductive vias; and

filling said at least one cavity with conductive material followed by planarizing said fourth dielectric layer and said conductive material.

5 (withdrawn): The method as recited in claim 4, wherein step g5) further comprises the step of lining said at least one cavity with barrier material.

6 (currently amended): The method as recited in claim 1, wherein ~~said~~ actuation electrodes are separated from ~~said ground~~ grounded electrodes by an air gap.

7 (currently amended): The method as recited in claim [[1]] 6 wherein a voltage applied between said actuation electrodes and said ~~ground~~ grounded electrodes creates an attraction force on said ~~ground~~ grounded electrodes and said metal lines, inducing movement of said ~~ground~~ grounded electrodes with respect to said actuation electrodes.

8 (canceled)

9 (currently amended): The method as recited in claim 1, wherein said conductive vias are separated from each other by said ~~deformable~~ elastomeric material ~~said elastomeric material providing mechanical stability and improving reliability~~.

10 (withdrawn): The method as recited in claim 1, wherein step d) further comprises the steps of:

d1) depositing an insulating layer above said planarized sacrificial material; and

d2) depositing an insulating layer above said actuation electrodes.

11 (withdrawn): The method as recited in claim 10, wherein said insulating layers are made of a dielectric material selected from the group consisting of SiN, SiO_2 and SiCN.

12 (withdrawn): The method as recited in claim 1, wherein said ground plane electrodes and said metal lines are anchored in dielectric material at at least one end thereof.

13 (withdrawn): The method as recited in claim 10, wherein said dielectric surrounding said electrodes is selected from the group consisting of SiO_2, flourinated SiO_2, and SiCOH.

14 (withdrawn): The method as recited in claim 1, wherein said ground electrodes and metal lines curl up or down depending on a stress gradient within said metal lines.

15 (withdrawn): The method as recited in claim 14, wherein said stress gradient in said metal lines comprises the steps of:

a) varying deposition conditions of said metal lines;

b) controlling said deposition conditions and the composition of barrier material surrounding said at least one cavity;

c) varying the thickness of said barrier material; and

d) varying said deposition conditions of said insulating layer above said sacrificial material and said elastomeric material positioned between said conductive vias.

16 (withdrawn): The method as recited in claim 15, wherein said metal layer is made of a liner material selected from the group consisting of TaN, Ta, TiN, W and copper.